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# AIR WAR COLLEGE

## RESEARCH REPORT

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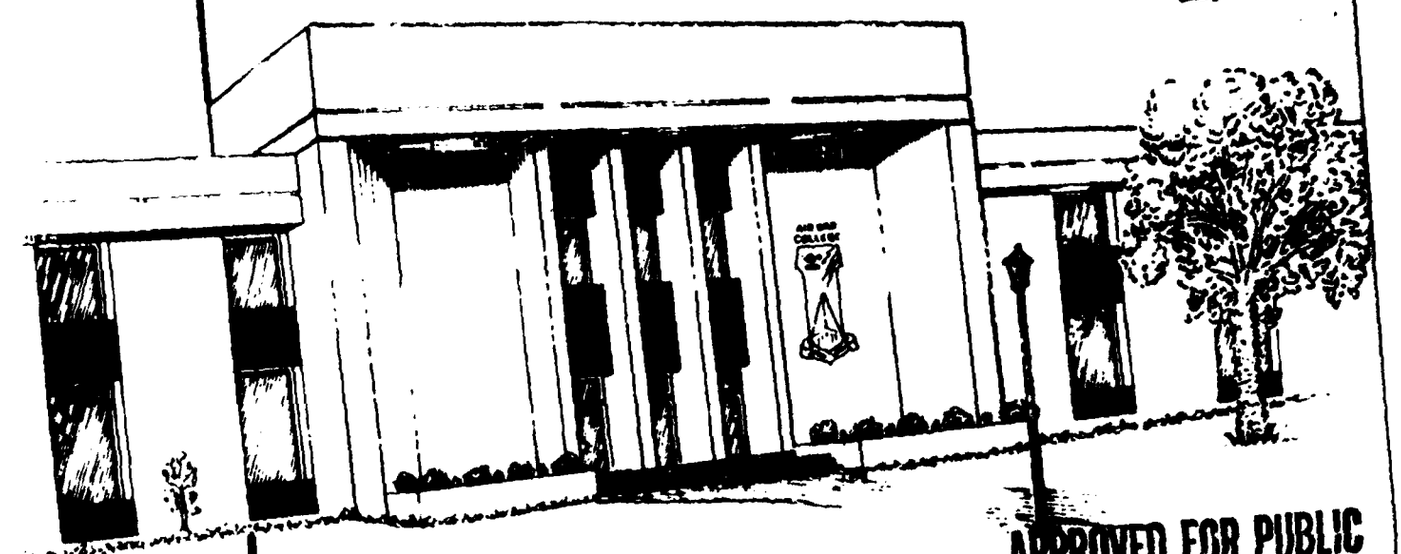
ROLE OF THE BOMBER IN INTEGRATED AIR POWER

By COLONEL PHILLIP R. LUMPKIN





AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

AIR WAR COLLEGE
AIR UNIVERSITY

# ROLE OF THE BOMBER IN INTEGRATED AIR POWER



by

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A RESEARCH PROJECT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE RESEARCH

REQUIREMENT



Research Advisor: Lt Colonel Ronald C. Osborne

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## AIR WAR COLLEGE RESEARCH REPORT ABSTRACT

TITLE: Role of the Bomber In Integrated Air Power

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The role of bombers and the concept of strategic nuclear deterrence have become dysfunctionally linked. The Air Force fostered this linkage in the post World War II and Korea era with its reliance on nuclear weapons and strategy of mutually assured destruction. Bombers continue to be a vital component of our nation's strategic nuclear deterrent forces. However, bombers are not limited to deterring nuclear war. In addition to employing the first nuclear weapons, U.S. war fighting experience shows that bombers have played a crucial role in every major conflict beginning with World War II. Since our experience shows that we have historically employed bombers in a conventional role, the author suggests that we should be prepared to employ them across the spectrum of conflict today. Our experience also clearly shows that bombers have been best employed as an element of integrated air power, rarely as an independent force. Therefore, we should prepare to employ bombers as a member of an integrated air power team. The author also suggests that the concepts of "tactical" and "strategic" are ill defined and serve to divide air power into organizations and forces. The author draws lessons from World War II and Vietnam experiences which could help guide our preparation for future conflicts.

## BIOGRAPHICAL SKETCH

Colonel Phillip R. Lumpkin (BS in Industrial Management, University of Arkansas and MBA, Ohio State University). Following pilot training at Vance AFB, OK, he flew the O-2A as a Forward Air Controller in Vietnam and Thailand. He then served as a B-52 aircraft commander, instructor pilot, and flight examiner with the 17th Bombardment Wing, Wright-Patterson AFB, OH. He completed his masters program at the Ohio State University in 1975 and was assigned to Systems Command's Aeronautical Systems Division at Wright-Patterson AFB, OH to work on the B-1 program. During this period he was attached to MAC as a T-39 pilot. He completed the Air Command and Staff College in 1980, and was assigned to Loring AFB, ME as the 69th Bombardment Squadron operations officer. In 1982 he was assigned to HQ USAF, DCS Research, Development and Acquisition as a program element monitor and staff officer dealing with Tactical Air Force systems and airbase survivability. In 1985 he assumed command of the 328th Bombardment Squadron, the B-52 Combat Crew Training School flying training squadron at Castle AFB, CA. In 1986 he was assigned to Minot AFB, ND as the 5th Bombardment Wing Assistant Deputy Commander for Operations. He is a command pilot with 4400 flying hours including over 800 combat hours and was qualified as a B-52 instructor pilot and KC-135 aircraft commander prior to attending the Air War College. Colonel Lumpkin is a graduate of Squadron Officer School, a Distinguished Graduate of the Air Command and Staff College, and a graduate of National Defense University and the Air War College, class of 1988

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## Chapter One

## INTRODUCTION

The role of the manned bomber is often associated with terms like strategic, nuclear and Single Integrated Operations Plan (SIOP) And there are good reasons to construe bombers in these terms

For over thirty years the bomber has served as the most visible and flexible leg of the nation's strategic triad of nuclear deterrent forces Following the Korean War, the U.S. took advantage of its decisive lead in fielding nuclear forces to threaten massive nuclear retaliation on the Soviet homeland as a means of deterring their potential aggression against us and our allies. The bomber was the perfect weapon system to execute this strategy -- having demonstrated its capability in Japan.

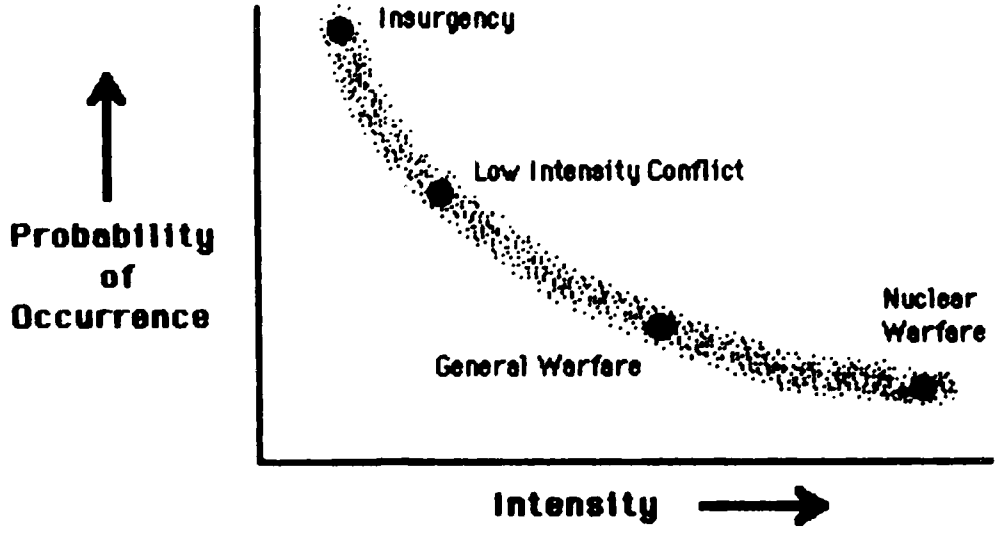
It's hard to argue with success, for close to forty years the U.S. nuclear deterrence strategy has averted nuclear war. Bombers, complemented with nuclear tipped land and sea launched ballistic missiles, continue to execute this strategy with forces constantly on alert. After executing our highest national defense priority for decades, it's easy to see how the role of bombers and the concept of strategic nuclear deterrence could become inextricably linked

The bomber's inherent flexibility, however, provides operational utility in tactical, as well as strategic employment, with conventional, as well as nuclear ordnance and in contingency, as well as emergency war order plans. The bomber has utility in various mission areas across the full spectrum of conflict.

"Tactical" and "strategic" have come to be associated more with force structure and organization than mission area. We commonly associate an F-111 or F-16 to the Tactical Air Forces and a B-52 or B-1 to the Strategic Air Command. The accounting calculus of the Planning Programming and Budgeting System addresses our strategic (ballistic missiles and bombers) and general purpose (fighter/ attack) capabilities as separate forces (e.g. Major Force Programs). Congress authorizes and appropriates specific hardware and personnel for each force -- separately. We inturn equip, man and train our "tactical" and "strategic" forces in ways which institutionally keeps them separate. For instance, we provide weapon system specific training to our crew members which determines their career path, and we allow virtually no cross training. "Tactical" and "strategic" forces often participate in exercises, such as Red Flag, but rarely as an integrated force. Bombers are either targets or lone penetrators, while fighters concentrate on the air-to-air challenge. This separation may be useful for academic and programmatic pursuits, but it is divisive when it comes to the application or employment of air power!

The role of bombers is as important a question today as it was in the 1920s. Strategic nuclear deterrence will continue to be a vital role, one that may in fact be enhanced as counterforce targets become increasingly mobile and their relative values increase as a result of strategic arms negotiations. While strategic nuclear war is our nation's most critical challenge, it's also the mission we're least likely to execute, see Figure 1-1. The probability of lower intensity conflicts is much greater.

The cost of fielding a bomber force adequate for full scale nuclear war results in the capacity for substantial contingency



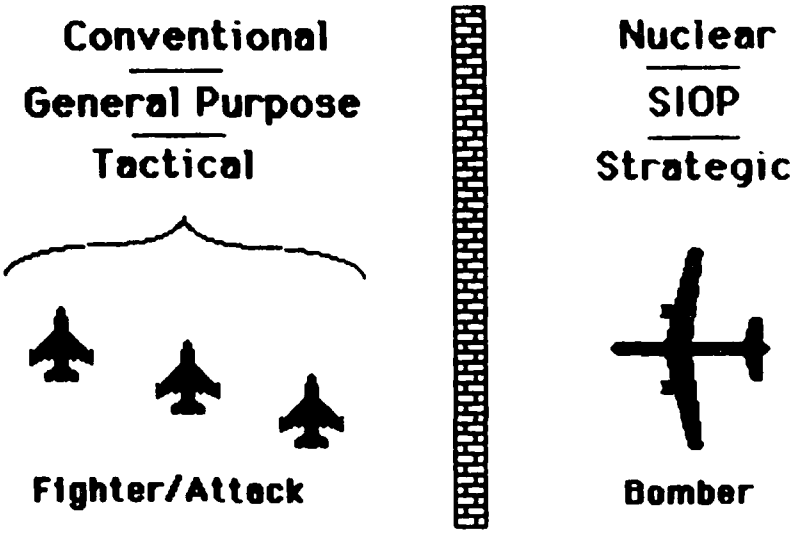

**Spectrum of Conflict**

Figure 1 - 1

operations at lower levels of conflict. The bomber's inherent capacity to accurately deliver large bomb loads deep in enemy territory is combat power that we cannot afford to underemploy. Bomber crews are specifically trained for all weather, day or night, low altitude penetration of heavy defenses. The capability to provide deep interdiction against follow-on forces (Air/Land Battle doctrine) exists today in our bomber force as well as our fighter-bombers. We can no longer afford to segregate our "pursuit" and "bombardment" force structure into separate worlds. The role of the bomber is as a member of the air power team; it must be more fully integrated into the tactical/conventional environment.

Pursuit, attack and bombardment emerged as primary mission areas for the fledgling U.S. Air Corp following World War I. The development of doctrine, strategy and tactics for these mission areas

has followed independent paths, as if separated by a brick wall (see Figure 1-2). However, actual combat experience suggests that these forces have been significantly more decisive when integrated and employed as a total force.




**Aerospace Offensive Forces**

Figure 1 - 2

The major thrust of this paper is to examine the role of the bomber as a member of the indivisible air power team. I'll address the role of bombers by first examining the historical development of air power doctrine. Then I'll compare "how we planned to fight" with our combat experience (how we actually fought) in Europe during World War II and the Linebacker II campaign in Vietnam.

The conclusion pulls together elements of doctrine and lessons learned from our war experience and discusses the role of the bomber in the context of "tactical" and "strategic" mission areas.

## Chapter Two

## AIR POWER DOCTRINE

Doctrine provides the basis for how we plan to fight. JCS Pub One defines doctrine as:

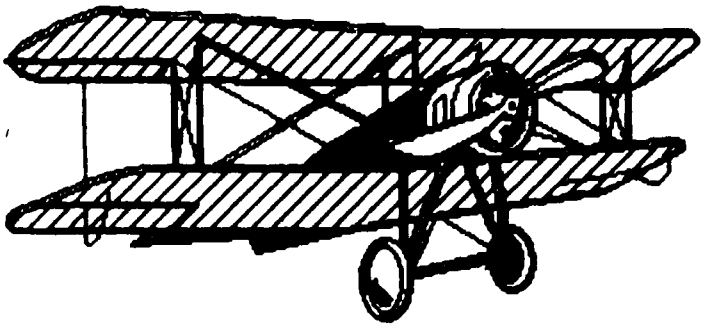
> the fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgement in application [1]

AFM 1-1 expands this definition by stating that aerospace doctrine:

> is a statement of officially sanctioned beliefs and warfighting principles which describe and guide the proper use of aerospace forces in military action. The Air Force promulgates and teaches this doctrine as a common frame of reference on the best way to prepare and employ aerospace forces. Accordingly, aerospace doctrine drives how the Air Force organizes, trains, equips, and sustains its forces [2]

The historical role of bombardment had its foundation in the development of air power doctrine. Following World War I, renowned air power pioneers such as Trenchard, Douhet, Seversky and Mitchell formulated doctrine which harnessed the combat potential of aviation and led to its rapid maturation in World War II. To a remarkable degree, their pervasive and foresighted influence continues to shape aerospace doctrine. This chapter focuses on the development of air power doctrine.

United States aviation experience in World War I was relatively limited. The first American



unit to see action (the 94th Pursuit Squadron, Eddie Rickenbacker's famous "Hat in the Ring" outfit) was in April 1918, just seven months before the armistice.[3] By this time the highly romanticized era of the individual pilot, fighting alone had given way to mass pursuit actions. The Air Service followed the pursuit training and tactics which the Allies (including individual American fliers) had been using. By the War's end, most airmen believed that air supremacy was the primary aim of an air force. Since pursuit aviation's primary objective was the destruction of an enemy's air force, many also believed it to be the most important function for an air force. Observation, attack and bombardment also emerged as discrete mission areas from the war experience. The same types of biplanes were used for all mission areas. Armament was crude and generally limited to guns or whatever the pilot could drop over the side of his open cockpit.

Although bombardment as a mission area evolved during World War I, the brevity of American involvement and the limited technological development of the airplane precluded any significant activity. Bombardment was generally employed in support of ground forces through attack on the battlefield. General Mitchell, acting as the commander of the Air Service in Europe, organized and led the only mass bombardment raid late in the war. His objective was to strike behind enemy lines and destroy enemy aircraft on the ground (offensive counter air). The success of this mission laid the foundation for an evolving role for bombardment.

Two prominent airmen, General Billy Mitchell and General

Giulio Douhet, set the stage for the development of U.S. air doctrine following World War I. Both of these articulate men drew from their combat experience during the war to become staunch, controversial advocates of air power.

## Mitchell

General Mitchell used his position of Assistant Chief of the Air Service following World War I to focus American attention on air power, particularly air power's potential to take the battle deep behind enemy lines. Air power offered an attractive alternative to the stagnant trench warfare, which had characterized World War I, by permitting a direct attack on an enemy's industrial war making capacity and on the enemy population's morale.

> Heretofore, to reach the heart of a country and gain victory in war, the land armies had to be defeated in the field and a long process of successive military advances made against it. Broken railroad lines, blown up bridges, and destroyed roads necessitated months of hardships, the loss of thousands of lives, and untold wealth to accomplish. Now an attack from an air force using explosive bombs and gas may cause the complete evacuation of and cessation of industry in these places. This would deprive armies, air forces, and navies even, of their means of destruction.[4]

With great foresight General Mitchell envisioned a new way to wage war. The airplane's mobility, flexibility of employment and especially its unprecedented destructive power were demonstrated in 1921 when Martin bombers from the First Provisional Air Brigade sunk the captured German battleship Ostfriesland.[5] General Mitchell became convinced that:

> Aircraft possess the most powerful weapons ever devised by man. They carry not only guns and cannon but heavy missiles that utilize the force of gravity for their propulsion and which can cause more damage than any other weapon.[5]

General Mitchell emerged from the war as a firm believer in the value of pursuit aviation. As he increasingly advocated bombardment, he continued to value pursuit and stressed the interdependence between pursuit and bombardment.

> Bombardment and friendly Pursuit must work together. Each must understand the methods, powers and limitations of the other. Pursuit should realize that while a Bombardment formation is a formidable defense unit and can give a good account of itself when attacked by enemy pursuit, it is certain to suffer heavy casualties if subjected to incessant attack by a greatly superior force. Bombardment on the other hand, should know that Pursuit is needed to protect Attack and Observation aviation and to carry out missions against enemy pursuit. To afford Bombardment close pursuit protection is unnecessary and a waste of Pursuit aviation.[6]

He also recognized the need for collaboration between air and ground forces. However, as he gained more confidence in the capabilities of the airplane, his early views of interdependence gave way to a predominant role for air power. By the mid 1920's he wrote:

> No longer will the tedious and expensive process of wearing down the enemy's land forces by continuous attacks be resorted to. The air forces will strike immediately at the enemy's manufacturing and food centers, railways, bridges, canals, and harbors. The saving of lives, manpower, and expenditures will be tremendous for the winning side.[7]

> It is probable that future wars again will be conducted by a special class, the air force, as it was by the armored knights in the Middle Ages. Again the whole population will not have to be called in the event of national emergency, but only enough of it to man the machines that are the most potent in national defense.[8]

General Mitchell postulated that future wars would be fought by engaging an enemy's economic and industrial structure. He saw air power as the capability and the bomber as the specific instrument to carry the war deep into enemy territory. Since this "strategic bombardment" was in large part to be accomplished

independent of army or naval forces, he also argued that an independent organization for air power was needed

**Douhet**

From the perspective of American airmen, General Douhet's writings on strategic bombardment lent enormous credibility to the theories of employment and organization which General Mitchell espoused. General Douhet first wrote about the importance of air power in 1909, however, his first book didn't appear until 1921 after he had withdrawn from the Italian government[9]. Subsequent books like *Rivista Aeronautica*[10] and especially *The Command of the Air*[11] were much more complete statements of his beliefs. These writings were translated into English in 1932, and became generally available to American officers in 1933[12].

General Douhet's thesis assumes a total war environment and centers on his preference for the enemy's industrial and economic infrastructure vice his deployed military forces as the primary objective. He based his theory of air power on two major assumptions. First, he believed that aircraft were instruments of incompatible potentialities, against which no effective defenses could be foreseen. Second, he believed that civilian morale could easily be shattered by bombing centers of population.[12] He contended that the enemy center of gravity was the civil "will to fight" and when this will was broken, the war was won. In short he advocated the intense concentration of bombardment on a small area, the selection of industrial objectives and the building of large bombers stoutly armed for their own defense.[13]

From this thesis, he expounded several elements of doctrine

1. In order to assure an adequate national defense, it is necessary -- and sufficient -- to be in an position in case of war to conquer the command of the air
2. The primary objectives of aerial attack should not be the military installations, but the industries and centers of population remote from the contact of the surface armies
3. An enemy air force, in particular, should not be dealt with by combat in the air but primarily by destruction of the ground installations and of the factories from which its supplies of materiel come
4. The role of surface forces should be a defensive one, designed to hold a front and to prevent an enemy seizure by surface action of one's own communications, industries, and air force establishments, while the development of one's own aerial offensive is proceeding with its paralysis of the enemy people's will to endure
5. In the interest of the most economical application of total effort, the use of specialized fighting aircraft for defense against enemy bombers should be foregone The basic type of air force equipment should be a "battle plane," which conducts bombardment and is at the same time self-defending, or can alternatively be used solely for combat purposes.[14]

Douhet's concept of a combat aircraft was the aeronautical equivalent of a battleship. Douhet believed that his heavily armored "battle plane" would always get the best of the faster pursuit plane and even reasoned that speed wasn't an important factor He foresaw only a limited role for pursuit aviation

> War is no longer fought in an series of scattered individual encounters, no matter how brave or skillful the individuals may be War today is fought by masses of men and machines. . . . What determines victory in aerial warfare is fire power.[15]

His concept of a pursuit aircraft was essentially the same as for the "battle plane," therefore he concluded that it would be uneconomical

to build such an aircraft and forego its offensive potential by using it as a "defensive fighter." His views about the primarily defensive roles of surface forces also led him to discount the requirement for attack aviation to support these ground forces

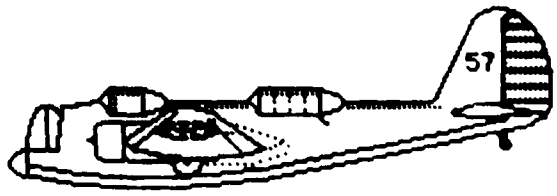
**Air Corp Tactical School**

The views of these two air power pioneers (and others) provided the grist for the doctrinal mill at the Air Corp Tactical School The school was established in 1920 at Langley Field, Virginia as an "air" counterpart to the Army and Navy service schools Later moved to Maxwell Field, Alabama in 1931, the school provided an ideal environment for the development of air power doctrine [16] Air Corp officers such as Ken Walker, Robert Olds, Harold George, Claire Chennault, Laurence Kuter and Haywood Hansell, Jr. (to name a few), both faculty and students studied, experimented, debated, expanded, taught and expounded the doctrine which we took into World War II

The school first challenged War Department employment concepts as early as 1926. The text for the "Employment of Combined Air Force" stated that the goal in war was not the destruction of the enemy's field forces, but the destruction of his morale and will to resist. Any effective means, including the annihilation of his army, could be used to achieve this goal, but at the outset of hostilities the best method might be air attack on the enemy's interior.[16] This understanding of the objective and bombardment's role in achieving it were the founding tenets of emerging air power doctrine.

Two other related influences shaped the doctrinal arguments

in the early 1930s, technology and organization. Technology and doctrine are directly related. The emerging concept of strategic bombardment was considerably furthered by the quantum improvements in large aircraft design in the late 1920's and 1930's. Aircraft like the Boeing B-9 and Martin B-10 ushered in monoplane designs, metal skin construction, retractable landing gear and more powerful engines. These technological enhancements produced bombers that could outperform (higher, farther, faster) contemporary pursuit aircraft. Just when the debate about the bomber's ability to survive enemy defenses was reaching its climax, the question was overcome by events -- nothing could catch a bomber.




**Martin B-10**

Organizational issues also influenced the development of doctrine. The War Department slowly acknowledged the value of aviation, however, throughout the 1920s the General Staff's central premise remained unchanged -- air power was an auxiliary force to assist American ground forces destroy the enemy ground army.[17] Many air power pioneers believed in an independent role for air power and an organization separate from the Army. Harold George gave the following testimony before the Howell Commission in 1934:

> . . . Air power as a new method for waging war can only be realized when its employment as a new method of conducting warfare is understood and when it is given an opportunity to develop itself primarily for the waging of independent warfare instead of as an auxiliary of the other armed forces.
>
> I believe that our Navy requires Naval Aviation as an integral part of that organization. I believe, however, that all other aviation should be organized into an independent Air Force.[18]

The justification for an independent air force required a fighting role independent from the Army. Observation, attack and pursuit were associated with ground forces, strategic bombardment was the sole prerogative of air power. Thus, advocacy of strategic bombardment became the means to achieve an independent air force. However, this advocacy detracted from the objectivity given to emerging doctrine.

The structure, principles and doctrine of air power developed at the Air Corp Tactical School rested on three tenets:

1. Modern great powers are dependent upon mechanization and industrialization both for the conduct of war and for the preservation of great power status. Thus, destruction of carefully selected elements of the industrial system could paralyze war supporting industry and vitiate the capability to wage effective warfare.
2. Bombs were available or could be built which if properly placed would destroy any man-made structure. Such bombs could be delivered from the air with adequate accuracy.
3. In the current relationship between powers of the bomber and the defending fighter, it was considered that offensive air forces could use speed, initiative, deception, altitude, defensive formations and gunfire to penetrate air defenses and reach vital interior targets without incurring intolerable losses. If, however, enemy air defenses seemed likely to induce unacceptable losses, the enemy fighter forces would have to be weakened by air attack and air combat, as a preliminary or "intermediate" step.[19]

By the mid 1930s the School held that the functions of air power fell into five categories:

1. Strategic offensive air warfare, including (1) the disruption of the enemy capability to wage war and the breakdown of

the enemy will to resist. This would be achieved by selection and destruction of the industrial systems which produced the means to wage war and to sustain the life of a modern, industrialized nation. (2) the destruction of the enemy air forces if they constituted a threat to our own nation, to our military forces, or to the success of our air offensive.

2. Air support of ground forces in the attainment of their immediate goals, including the provision of local air superiority.
3. Air support of sea forces or, in the absence of such sea forces, performance of certain functions of sea power
4. National air defense against enemy air forces threatening our own sources of national power, and
5. Air operations against surface invasions threatening our shores.[20]

The School's Department of Air Tactics and Strategy taught that strategic offensive air warfare included five subcategories

1. A. Direct attack of enemy armed forces, including air forces, on the ground and in the air; concentrations of troops; naval and maritime elements, logistics facilities in the combat zone; and
   B. Local air defense of friendly military forces and bases.
2. A. Indirect air attack of enemy forces, including destruction of: munitions factories or all kinds; major interior depots and supply concentrations; steel production and non-ferrous metal production; machine tool factories, military fuel sources including: oil producing fields, oil refineries, synthetic petroleum facilities, oil transportation, fuel storage; military explosive and ammunitions sources; sources of raw materials; systems supporting military production, including: electric power generating stations, transformer and switching stations, dams and penstocks, fuel and transfer facilities, transportation systems which provide integration of military industrial resources; transportation systems which move finished supplies to the armed forces, and
   B. Air defense of friendly military support facilities

3. Indirect air attack of the economic and social structure of the enemy state, including destruction or neutralization of electric power systems, communication systems; basic economic industrial production; water supply systems; industrial and economic transportation systems; food handling systems, food production systems; food preservation and distribution systems; and management control systems.
4. Direct air attack of enemy social centers, including cities and factory worker dwelling areas.
5. Strategic air defense of one's own urban, industrial and base areas.[21]

By the time Hitler invaded Poland in 1939, the School's bombardment doctrine could be summarized as follows:

> The most efficient way to defeat an enemy is to destroy, by means of bombardment from the air, his war-making capacity; the means to this end is to identify by scientific analysis those particular elements of his war potential the elimination of which will cripple either his war machine or his will to continue the conflict; these elements having been identified, they should be attacked by large masses of bombardment aircraft flying in formation, at high altitude, in daylight and equipped with precision bombsights that will make possible the positive identification and destruction of "pinpoint" targets; finally, such bombing missions having been carried out, the enemy, regardless of his strength in armies and navies, will lack the means to support continued military action.[22]

General Hansell's reflections on the assumptions underlying bomber defense are enlightening.

> The fanatical belief of the bombers in their own defensive fire power was not so much a choice and election to operate unescorted as it was a conclusion that fighters could not be built with sufficient range to accompany them. The Pursuit Section, on the other hand, wanted no part of the escorting problem. They just as fanatically contended that fighters should be built purely and solely for operation in anti-aircraft defense.[23]

The essence of this doctrine can be restated thusly:

1. Objective: Destroy the enemy's war making capacity by crippling his war machine or his will to fight.
2. Means to achieve objective: Bombardment from the air.

3 Tactics:

A. Large (defensive) formations of bombardment aircraft.

B. Flying at high altitude

C. Daylight, precision bombing of pinpoint targets

4 Expected Result: Enemy will be deprived of the means to continue conflict.

Events during 1940, such as the fall of France, the (air) Battle of Britain and the Tripartite Pact which brought Japan openly into the Axis camp, plus the Nazi invasion of Russia in 1941 shunted American military thinking away from theoretical doctrine and concepts to strategic plans and mobilization. In July 1941 President Roosevelt tasked the Secretaries of War and the Navy to prepare an estimate of the "overall production requirements required to defeat our potential enemies." This tasking provided a unique opportunity for air power proponents. Faced with a short suspense to the President and a lack of expertise in the War Department's War Plans Division, General Hap Arnold seized the opportunity for his "air staff" to develop what became the "Air Annex" to the War Department's ground requirements. He assigned this challenge to the Air War Plans Division. This division was manned by Harold George, Kenneth Walker, Haywood Hansell, Jr. and Laurence Kuter -- four airmen who had served together at the Air Corp Tactical School. These airmen drafted AWPD-1 (Air War Plans Division -1) which became the plan for the creation of the Army Air Forces and guided the conduct of the (looming) air war.[24]

AWPD-1 addressed the requirements to defeat the Axis powers; it was not an employment plan. It was based on the strategic concepts embodied in ABC-1 (results of American and

British consultations in January 1941) and with RAINBOW No. 5, the overall war plan which assumed the United States and Great Britain standing against the Axis powers. At this time, virtually no hope was given to Russia's ability to survive Hitler's invasion. The following air priorities were established:

1. Conduct air operations in defense of the Western Hemisphere.
2. Prosecute as soon as possible, after the commencement of war, an "unremitting and sustained air offensive against Germany."
3. Support a strategic defense in the Pacific Theater.
4. Provide air support for the invasion of the European Continent if that should be necessary, and continue to conduct strategic air operations thereafter against the foundations of German military power and the German state until its collapse.
5. After victory over Germany, concentrate maximum air power for a strategic air offensive against the home islands of Japan.[25]

The second objective, an "unremitting and sustained air offensive against Germany," became the immediate and primary focus of AWPD-1. This "strategic bombardment" air offensive against the war supporting heart of Germany required an indepth analysis of vital target systems in Germany's industrial infrastructure. A vital target produced a product or service that: was essential to the war effort, had little or no substitute, had production concentrated in a few plants and the plants were vulnerable to air attack. AWPD-1 planners settled on these strategic target objectives:

1. Electric power system.
2. Transportation system (railroads, highways and canals).
3. Oil and petroleum system (primarily the synthetic oil pro-

duction complex and the oil sources of Ploesti in Rumania)
INTERMIDATE OBJECTIVE
4 Overcome the German fighter defenses.[26]

According to General Hansell.

> The primary target systems were selected on the basis of an air offensive embracing the entire strategic air force, after it had reached full strength, and lasting for six months. Moreover, the offensive was planned to be completed before the invasion, if an invasion should prove necessary. Target schedule for the beginning of the main air offensive was taken as one year and nine months after the outbreak of war. One year was for production, training, and organization of the force. Nine months were reserved for deployment overseas, build up, and initial combat experience of the force. By that time we anticipated there should be a total bomber force of nearly 4,000 bombers in place.[27]

The materiel and manpower specified in AWPD-1 were overwhelming, especially compared to the meager procurements of the mid-to-late 1930s. The number of organized combat units recommended came to 207 groups with 11,853 aircraft. This combat force would be backed by 37,051 trainers and depot reserves for a total of 58,059 operational aircraft. Plans for an extremely long range bomber, the B-36, could have added another 3,740 aircraft to this total. Anticipated attrition called for a monthly replacement rate of 2,133 aircraft. The Plan called for 135,526 pilots, navigators, bombardiers, observers, and machine gunners, 862,439 technicians, 60,153 non-flying officers, and 1,106,798 non-technical, but trained, personnel. This amounted to 2,164,916 men.[28]

Two modifications were made to ADPD-1 in 1942 and 1943 which guided the development of Allied air power. AWPD-42 resulted when President Roosevelt asked for an update of AWPD-1 in August 1942 to achieve complete air ascendancy over the enemy. With the Japanese attack at Pearl Harbor in December 1941 the

reluctant United States had been drawn into the conflict and the plan needed to be updated to reflect the strategic realities. The third plan was a logical extrapolation of AWPD-1 and was based on the combined U.S./British Casablanca Directive of January 1943. This directive resulted in a plan called the Combined Bomber Offensive (CBO) which directed the activity of both British and American strategic Air Forces.[29] These plans are compared in Table 2 - 1

| AWPD-1 | AWPD-42 | CBO |
|---|---|---|
| **Target Priorities** | | |
| 1 German Air Force<br>Aircraft factories<br>Aluminum plants<br>Magnesium plants<br>Engine factories<br>2. Electric Power<br>Power plants<br>Switching stations<br>3. Transportation<br>Rail<br>Water<br>4. Petroleum<br>Refineries<br>Synthetic plants | 1. German Air Force<br>Aircraft factories<br>Engine plants<br>Aluminum plants<br>2. Submarine Building Yards<br>3. Transportation<br>Rail<br>Water<br>4. Electric Power<br>Power plants<br>Switching stations<br>5. Petroleum<br>Refineries<br>Synthetic plants<br>6. Rubber<br>Synthetic plants | 1. German Air Force<br>Fighter aircraft plants<br>Engine plnts<br>Combat attrition<br>2. Submarine Buildings Yards and Bases<br>3. Ball Bearings<br>4. Petroleum<br>Refineries<br>Synthetic plants<br>5. Rubber<br>Synthetic plants<br>6. Military Transport<br>Armored vehicle plants<br>Vehicle plants |
| **Total Targets** | | |
| 191 | 177 | 76 |
| **Programmed Time of Initiation** | | |
| Mid 1943 | Late 1943 | Late 1943 |
| **US Heavy Bomber Forces** | | |
| 3800 | 3000 | 3500 |

**Comparison of Strategic Bombing Plans**

**Table 2 - 1**[30]

## Notes on Chapter 2

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3. *The Development of Air Doctrine in the Army Air Arm 1917-1941*, 1985, GPO Washington D.C., p 8.

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6. Dewitt S. Copp, *A Few Great Captains*, Garden City, New York, Doubleday, 1980, p 319.

7. Mitchell, *Winged Defense*, pp xv - xvi

8. Ibid., p 19.

9. Giulio Douhet, *Il Dominio dell' Aria, saffio sul' arte della guerra aerea* (Roma: Stab. Poligr. per l'Amministrazione dell guerra, 1921).

10. Giulio Douhet, "La Guuerra del' 19--," *Revista Aeronautica* (March 1930), p 409-502

11. Giulio Douhet, *The Command of the Air*, trans by Dino Ferrari, New York: Coward-McCann, 1942.

12. Edward Mead Earle, Ed., *Makers of Modern Strategy: Military Thought From Machiavelle to Hitler*, 1943, renewed 1971, Princeton University Press, pp. 485-501.

13. Ibid., pp. 485-501.

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16. Foulois and the U.S. Army Air Corp, 1931 - 1935, Washington DC, Office of Air Force History, 1983, pp 43-48,50,51, 75,234,235.

17 Ibid., pp. 43-48

18. Haywood S. Hansell, Jr., *The Air Plan That Defeated Hitler*, 1972, Higgins-McArthur/Longino & Porter, Inc., Atlanta, Georgia, pp 27,28.

19. Ibid., p 40.

20. Ibid., pp. 40,41.

21. Ibid., pp. 47,48.

22. MacIsaac, *Strategic Bombing in World War Two. The Story of the United States Strategic Bombing Survey*, p 7.

23. "Notes for a Lecture on the Development of the U.S

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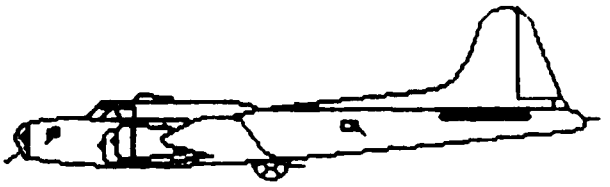
24 Hansell, *The Air Plan That Defeated Hitler*, p 98.
25 Ibid., p 70
26 Ibid., pp 78 - 84.
27 Ibid., pp. 78,79.
28 Ibid., p 88.
29 Ibid., pp. 100, 157 - 162.
30 Ibid., p 163

## Chapter Three

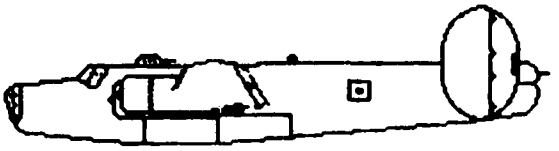
## WORLD WAR II EXPERIENCE

On 17 August 1942 the USAAF flew its first strategic bombing mission against Hitler's fortress Europe. A handful of Eighth Air Force B-17s from British bases conducted this unescorted, daylight bombing raid against a marshalling yard in northeastern France with no losses.[1]

B-17s and B-24s, began to probe German defenses regularly in early 1943 and encountered the first real challenge to the doctrine of strategic bombardment. At the Air Corp Tactical School Kenneth Walker had staunchly advocated that:



**Boeing B-17F**



**Consolidated B-24D**

> A well planned and well conducted bombardment attack, once launched, cannot be stopped.[2]

Unfortunately the German pilots had missed his lecture and the value of escorting fighters was soon recognized.

> The initial operations of the Eighth Bomber Command, prior to TORCH, had involved shallow penetrations and the small bomber forces had been heavily escorted by R.A.F. Spitfires. On the one occasion when a single group had been separated from the escort, the German fighters had downed three B-17s out of a group of 24.[3]

On 3 January 1943, the 1st Bomb Wing attacked the submarine pens

at St Nazaire, France. The Wing Commander, General Hansell, sent all four groups of his wing against the target and made the following observations:

> The Spitfires of the R.A.F. provided excellent cover as far as their fuel would permit. The German fighters did not attack either the Fortresses or the Spitfires. They just assembled and flew a loose formation with us, knowing that the Spitfires would have to turn back.
>
> When this happened, the German fighters drew ahead, turned and made head-on attacks, plowing right through our formations. When B-17s became crippled the pack concentrated on them from all directions. The German fighters were skillful, determined, and courageous. . .
>
> Our bombing was erratic and we lost seven B-17s from a total of 85 which took off.[4]

These brief accounts illustrate the sobering reality of Nazi air defenses. The defeat of the Luftwaffe had, in fact, been listed as an intermediate objective of overriding importance in AWPD-1. The planners stated that:

> Having already largely precluded fighter against fighter battles by selecting some targets deep in the heart of Germany, far beyond the range of available escorting fighters, we had to count on our own ability to hold defensive positions and use massed supporting firepower to keep the Luftwaffe, not from taking some toll, which was unavoidable, but from shooting down sufficient bombers to seriously hamper the mission. We knew that defensive firepower in the air would not suffice to defeat the Luftwaffe, and that we would have to take up the offensive against German bases, aircraft manufacturing and assembly plants, and aircraft engine plants on the ground.
>
> It became increasingly clear that the German Air Force could only be defeated or neutralized by the destruction of the manufacturing facilities necessary for the building of its aircraft and engines, by the elimination or curtainment of its fuel supplies, and by air to air attrition.[5]

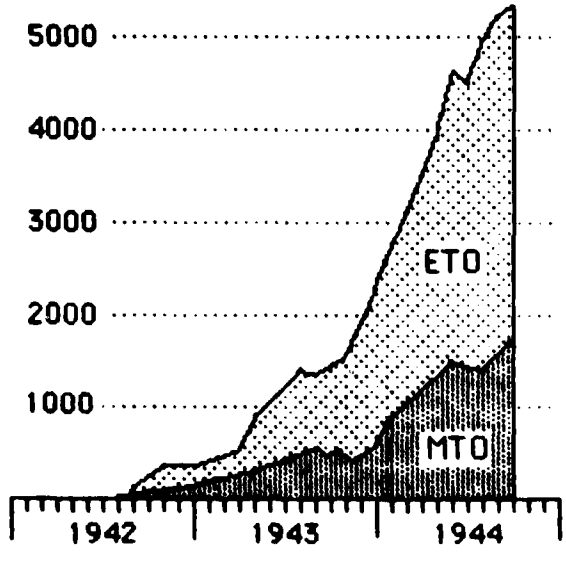
All too often analysts and historians reflect on the debilitating bomber losses caused by German fighters and attempt to prove or disprove that bombers could have successfully fought unescorted, or that the air offensive was saved only by the advent of the longrange escort fighter. General Hansell candidly states:

> The omission of escort fighters from the plans and their subsequent provision by modifying other fighter types was the most dramatic deviation between theoretical strategic plans and practical application.[6]

> . . Escort fighters, whose assistance had been predicted, were sorely needed Penetration of German airspace had to be limited until long-range fighters could be provided. The solution came in the form of droppable auxiliary tanks. Why no one had thought of this earlier defies explanation The Germans had used this device to extend the range of the Me-109 in the Spanish civil war.[7]

Readdressing this "most dramatic deviation" generally causes us to focus on an either/or -- tactical or strategic -- analysis which conceals significant lessons from our World War II experience

A brief review of U.S. strategic campaign statistics is in order to establish a perspective. American participation in the air war against Europe remained relatively modest through early 1943 as the build up of aircraft and crews gained momentum. Operation TORCH, the Allied invasion of North Africa in November 1942, diverted aircraft to the Mediterranean Theater of Operations (MTO) just as decisive numbers of bombers began to arrive in the European Theater of Operations (ETO). As can be seen from Figure 3 - 1, there was no appreciable growth of heavy bombers in the European theater for nearly six months. General Hansell states that with the invasion:




**USAAF Heavy Bombers**

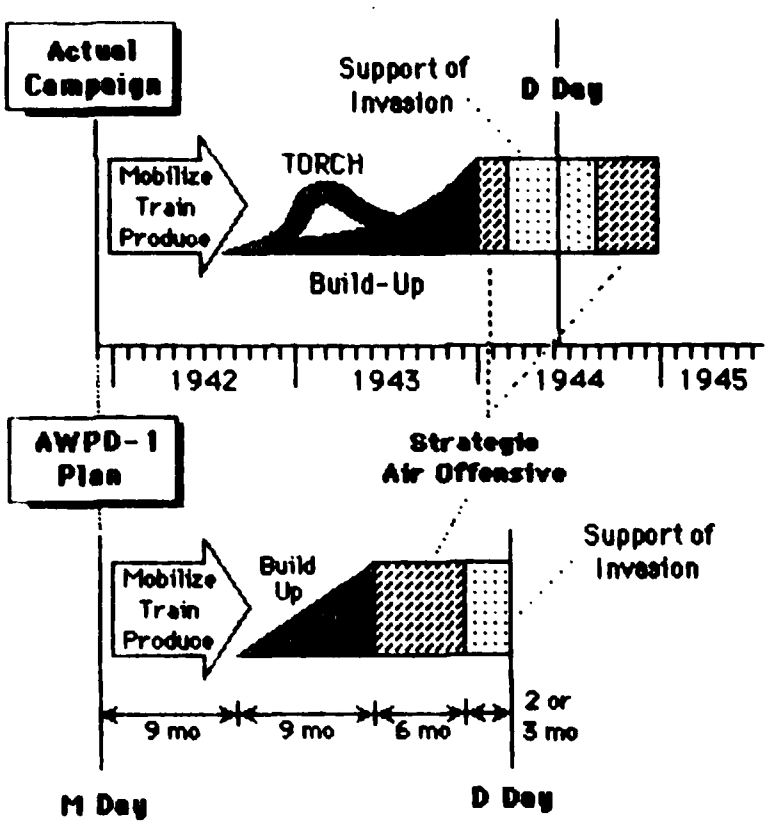
**Figure 3 - 1**[8]

> . . . the commander of VIIIth Bomber Command promptly

> lost three of his most experienced groups of "heavies" to the North African campaign and on December 3, 1942, General Eisenhower called for two more groups on a "loan basis" . . . for the aircrews who were preparing to venture into German airspace, it meant that a much weakened force was bearing the brunt of increasingly effective German fighter opposition.9

Figure 3 - 2 graphically shows the major events of the European Air Campaign compared with the AWPD-1 plan. The plan assumed nine months for initial mobilization, production and training, then nine additional months to deploy and build up in Europe. After eighteen months of preparation, the plan provided for a six month mass strategic bombing campaign. Then all air power was to be focused on direct support of an invasion. But in the heat of battle, plans are seldom executed as written. Clausewitz said

> Since all information and assumptions are open to doubt, and with chance at work everywhere, the commander continually finds that things are not as he expected.10



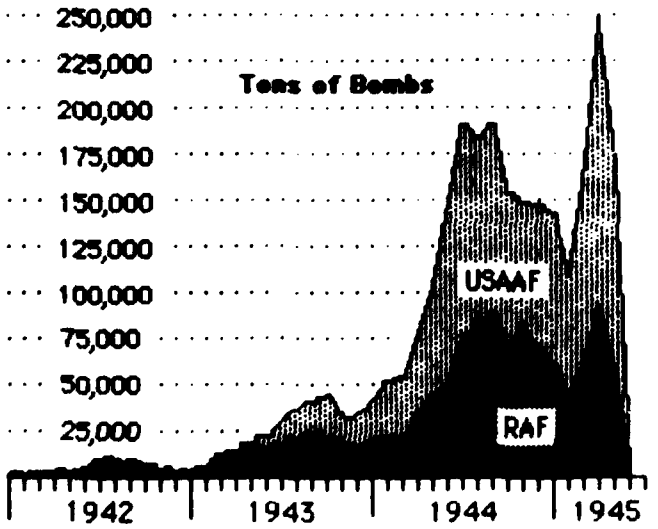

**U.S. Strategic Bombing Campaign in Europe**

Figure 3 - 2 11

The first heavy bombers began arriving in England a month sooner than originally planned. However, slower than planned industrial mobilization, the North African

invasion and stiff Luftwaffe defenses diffused and stretched out the build up. Long range escort fighters and heavy bombers accomplished only two of the planned six months of mass strategic bombing in Germany before General Eisenhower directed essentially all Allied air power onto tactical objectives to support the June 1944 Normandy invasion. The strategic air campaign was resumed in mid September, however, about forty percent of the bomb tonnage continued to be allocated to support the ground campaign while sixty percent was dropped on strategic targets in Germany. According to General Hansell:

> By the end of the war, the U.S. Air Forces had flown 755,000 bomber sorties and dropped some 1,410,000 tons of bombs. Of this tonnage, about one million tons were dropped by the Eighth and Fifteenth Air Forces.[12]




**Bombs Dropped on Europe, WW II**
**Figure 3 - 3** [13]

In the year May 1944 to May 1945, the U.S. reached full strength in Europe with an average of 3550 bombers and dropped 83 percent (832,600 tons) of the total tonnage.[14]

**Lesson One**

<u>Neither bombers nor fighters single handedly crippled German industrial war making capacity -- but integrated air power did!</u>

Air power, synergistic employment of heavy bombers with long range escort fighters, decisively defeated the Luftwaffe and destroyed Germany's war making capacity. As I summarize the results of the campaign, compare them with the primary objective for bombardment introduced in Chapter Two:

> The most efficient way to defeat an enemy is to destroy, by means of bombardment from the air, his war-making capacity; the means to this end is to identify by scientific analysis those particular elements of his war potential the elimination of which will cripple either his war machine or his will to continue the conflict . . . such bombing missions having been carried out, the enemy, regardless of his strength in armies and navies, will lack the means to support continued military action.[15]

Defeating the Luftwaffe was the first step in prosecuting both the bombardment campaign and the invasion of Europe. AWPD-1 planners had identified three critical avenues through which the German Air Force could be defeated. These provided the foundation of the Allied strategy.

1. Destroy German airframe and engine manufacturing plants.
2. Eliminate or curtail German fuel supplies.
3. Exact maximum German fighter attrition.

I'll discuss each of these looking at the role of bombers as well as escorting fighters.

First, German aircraft and engine manufacturing plants were the source of new (e.g. Me-262) and replacement warplanes. This industry had been a primary objective of AWPD-1, AWPD-42 and the CBO. Sporadic attacks were initiated in mid 1943, but mass attacks weren't made until early 1944. A total of approximately 51,000 tons of bombs (2.4 percent of the U.S. strategic effort) was dropped onto aircraft primarily airframe, manufacturing targets.[16]

The first raids against the aircraft industry were launched on 17 August 1943, exactly one year after the U.S. began daylight, precision bombing over Europe. Nearly 150 B-17s attacked the Me-109 plant at Regensburg and 230 attacked the ball bearing factories at Schweinfurt. Attrition of these unescorted bombers exceeded 15 percent primarily due to German fighters. The Schweinfurt ball bearing works were reattacked on 14 October 1943 by 291 B-17s, sixty did not return for an attrition of over 22 percent.[17]

Albert Speer, German Minister of Munitions, said after the war:

> "In those days, we anxiously asked ourselves how soon the enemy would realize that he could paralyze the production of thousands of armaments plants merely by destroying five or six relatively small (ball-bearing factories) targets." He was asked after the war what would have happened if there had been concerted and continuous attacks on the ball-bearing industry. He replied "Armaments production would have been critically weakened after two months and after four months would have been completely to a standstill."[18]

These missions disrupted German production. But relatively small numbers of bombers in theater coupled with prohibitive attrition mandated judicious employment, especially until the arrival of long range escort fighters.

German fighter production dropped (below plans) somewhat in late 1943, but the full capacity of the industry was mobilized and production rates actually began to climb. In the last week of February 1944 the U.S. launched a concentrated series of attacks on the industry with 3800 bomber and 3673 escort fighter sorties. The escorted bombers suffered about six percent attrition, compared to over 22 percent in the October 1943 raid at Regensberg. This one week campaign damaged about 75 percent of the buildings which

produced 90 percent of German aircraft.[19] Even though the Germans rebuilt the facilities and aircraft production was resumed with amazing speed, these raids were regarded as the turning point in the air war with the Luftwaffe. Despite the production of 25,000 single engine fighters throughout 1944, German first line (combat ready) fighters only increased from about 1500 in January 1944 to 2200 in January 1945.[20] The degree of destruction inflicted by the mature Army Air Force beginning in the spring of 1944 forced the Nazis to concentrate their strained fighter forces on the defense of Germany's industrial heartland -- General Spaatz, commander of the Europe-wide US strategic air command capitalized on this strategy for the Normandy invasion.[21]

Destruction of aircraft industry targets was an important -- but not decisive -- element in defeating the Luftwaffe. General Hansell summarizes:

> One is compelled to conclude that the air offensive against the aircraft and engine factories was not a primary cause of defeat of the German Air Force. True, the "Big Week" in February 1944 temporarily reduced aircraft production by two-thirds. However, the attacks were not sustained and the Germans quickly recovered. The Luftwaffe was defeated, not so much by air attacks on production facilities as by elimination of vital aviation gasoline and by combat attrition. Gun crews aboard the B-17s and B-24s did their share, and so did the long range P-51, P-47 and P-38 fighters which were a vital part of the strategic air forces that ranged all over Germany by early 1944.[22]

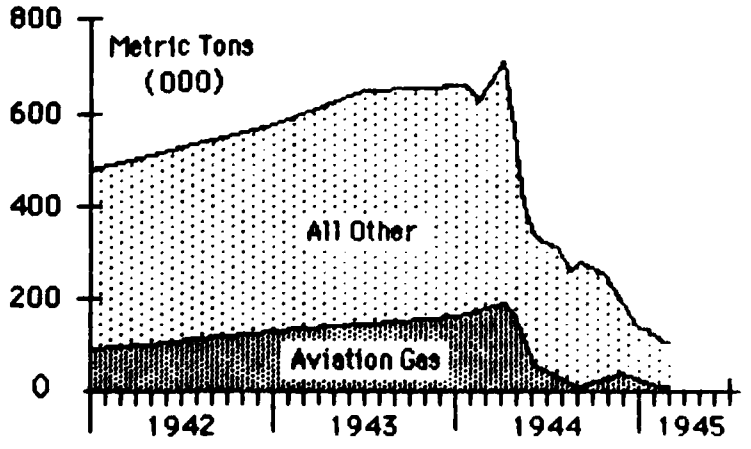
The second avenue to defeat the Luftwaffe was to eliminate or curtail German fuel supplies. Again, petroleum had been a primary objective of AWPD-1, AWPD-42 and the CBO. A total of 224,881 tons of bombs were dropped on refineries and synthetic fuel plants by both the USAAF and the RAF. Thirteen percent of the total US

strategic air forces tonnage was dropped on petroleum targets.[23]

The greatest single source of petroleum products for Hitler's war machine was the refinery complex at Ploesti, Rumania. The USAAF first bombed this complex in 1942 using Liberators (B-24s) from North African bases. However, the massive American raid on 1 August 1943 inflicted the first major damage. Even then, the plants were repaired and operating at premission capacity within a month. A total of 177 B-24s took part in this low altitude attack, 54 failed to return (30.5 percent attrition).[24]

While the oil refineries were important to Germany's war effort, the synthetic plants which synthesized coal, air and water into petroleum products were even more vital. These plants produced approximately 85 percent of her aviation fuel and motor gasoline, 100 percent of her methanol and nitric acid (basic component of explosives) and nearly 100 percent of her rubber.[25]

The first major air offensive against the synthetic plants occurred on 12 May 1944; the dramatic results can be seen in Figure 3 -4, despite the Nazis' extensive defense of these plants.[26]




**German Petroleum Production**

**Figure 3 - 4**

Albert Speer's comments show the effect of this attack

> I shall never forget the date May 12. . . . On that day the technological war was decided. Until then we had managed to produce approximately as many weapons as the armed forces needed, in spite of their considerable losses. But with the attack by nine hundred and thirty-five daylight bombers of the American Eighth Air Force upon several fuel plants in central and eastern Germany, a new era in the air war began . . . It meant the end of German armaments production.[27]

The initial attacks were followed up with reattacks. By late June 90 percent of the aviation gasoline production capacity was destroyed and by September nearly 95 percent was destroyed.[28] In retrospect, if these attacks could have been made when long range escort fighters were first available late in 1943, the Germans would have been out of aviation gas and motor fuel on D Day.

The Allies never targeted Germany's chemical industry. However, because her chemical plants were an adjunct of her synthetic petroleum plants, they also were bombed. Nitrogen production plummeted much like aviation gas. The United States Strategic Bombing Survey concluded

> Allied air attacks directed at Germany's synthetic oil plants effectively destroyed Germany's nitrogen production, with disastrous results to its munitions manufacture.[29]

The United States Strategic Bombing Survey concluded its report on oil with these thoughts.

> The most serious loss to the Germans was the loss in production of aviation gasoline, resulting almost wholly from the bombing of the Bergius hydrogenation plants.
>
> Aviation gasoline production declined from 170,000 tons per month to 52,000 tons the month after the bombing offensive began, was reduced to 26,000 tons by December and was virtually elimnated by March 1945. . . .
>
> Hitler started World War II without enough fuel. He had to fight much of the time for liquid fuel. He was deprived of the bulk of such fuel by strategic bombing of oil targets in the last year of the war, and, when the Nazis could neither manufacture nor capture any more appreciable quantities of liquid fuel, Germany's defeat became inevitable.[30]

Many of the petroleum facilities were deep in German territory. On the early unescorted bomber penetrations to these targets, the Luftwaffe had exacted devastating losses. The advent of P-47 and P-51 long range escort fighters unequivocally made these missions possible. Integrated forces of bombers and fighters totally destroyed Germany's petroleum production capacity and thus her war making capability. This is a prime example of the decisiveness of air power.

The third avenue to defeat the Luftwaffe was to maximize German fighter attrition. This attrition includes not only the aircraft but also trained pilots. The AWPD-1 planners recognized that bomber defensive firepower was not likely to mortally attrit the German fighter force in the air. They had analyzed German air bases, but these didn't appear to be the best targets for the heavy bombers. According to General Hansell:

> . . . . According to available information, there were approximately 500 air bases in Western Germany and the occupied territory. These were provided with strong "flak" defenses. The aircraft were generally dispersed about a mile from the landing areas, with each airplane protected by a revetment. Moreover, the whole system was expertly camouflaged and aircrews were scattered through the villages.[31]

Even though air bases weren't a primary target in any of the plans, nevertheless, 46,979 tons of bombs were dropped on German air fields and another 51,944 tons were dropped on French air fields in preparation for the invasion. This represents nearly 10 percent of the USAAF heavy bomber total.[32]

The escort fighters played a pivotal role in inflicting combat losses on the Luftwaffe. In addition to providing excellent fighter

escort to the bombers they were also employed in an independent offensive counter air role deep behind enemy lines. Repeating General Hansell's thoughts once again

> The Luftwaffe was defeated, not so much by air attacks on production facilities as by elimination of vital aviation gasoline and by combat attrition. Gun crews aboard the B-17s and B-24s did their share, and so did the long range P-51, P-47 and P-38 fighters which were a vital part of the strategic air forces that ranged all over Germany by early 1944.33

As discussed earlier under aircraft manufacturing, the number of German fighters being produced in 1944 approached 25,000, yet there was only a small increase in the number of combat ready aircraft, to about 2200 by 1 January 1945. In addition to destroying literally thousands of German aircraft, we also attrited their skilled pilot force. Their ability to train new pilots was inturn severely impacted by the shortage of gasoline. As the war continued, the quality of the German pilot deteriorated. The U. S. Strategic Bombing Survey concluded:

> This deterioration appeared to be the most important single cause of the defeat of the German Air Force.34

Combat attrition had not been properly taken into account by the early planners. However, once again the adaptability and employment flexibility of integrated air power was decisive.

Perhaps the best single measure of success for the campaign against the Luftwaffe is this simple statement, on D Day the skies over Normandy beaches were uncontested by German fighters. The U.S. Strategic Bombing Survey summarized its conclusions about the defeat of the Luftwaffe this way.

First: The German Air Force was originally designed for direct support of ground operations, and lack of a long-range bomber force proved a grave strategic error.

Second: Due to over-confidence, no attempt was made to utilize the full capacity of the German aircraft industry until after the initiation of the bomber attacks on Germany in June 1943.

Third: The attacks on German airframe production in 1943 and in February 1944 contributed significantly to the winning of air supremacy in the critical air battles of the early months of 1944.

Fourth: An overall shortage of aviation gasoline resulted in the curtailment of flying training as early as 1942 and this curtailment was reflected in the deterioration of quality of German pilot personnel, which was the principal cause of the defeat of the German Air Force.

Fifth: The German Air Force lost control of the air in the early months of 1944 and never regained it thereafter.

Sixth: Heavy air attack on the German petroleum industry in the summer of 1944 prevented the possibility of revival of a German Air Force utilizing conventional type aircraft; hence the increase in production of such aircraft, which took place after D-Day, was of little military significance.

Seventh: After the invasion, the creation of a small force composed of high-performance jet-type aircraft manned by qualified personnel and operating on low-grade fuels was the only method left to combat the Allied air offensive. The development of this type of force was not achieved in time to be a serious threat.[35]

Air power crippled Germany's industrial war making capacity through the synergistic integration of pursuit and bombardment capabilities. Similarly, integration between services and with our Allies gave us the decisive edge against Hitler.

**Lesson Two**

Germany was defeated by the decisive employment of Allied ground and air forces, supported by massive sea lift -- in a word, JOINTNESS. The prevailing wisdom among most military and political leaders of the period was couched in terms of ground campaigns and occupation. As I've discussed, there were others who would argue that air power set the stage for the ground campaign by destroying the Luftwaffe and Germany's war making capacity. Although it might have been tough to convince an infantryman of this

at Utah beach on D Day, history is clear -- neither air power, ground armies nor navies won the war single handedly.

Integration is much more than cooperation. It begins with the acceptance of and belief in a common objective, then leads to the acquisition of the properly tailored forces without regard to service affiliation and with acknowledged interdependences, realistically training these forces for the mission, then bring these forces to bear as an integrated military instrument to decisively defeat an aggressor. The concept of interservice integration between armies, navies and air forces is analogous to and just as fundamental as (Lesson One) intraservice integration among service components.

Top Army leaders like the Secretary of War, Honorable H. L Stimson and General George Marshall, the Army Chief of Staff, were men of vision who recognized the potential of air power without viewing it as a threat to or substitute for ground forces. Unfortunately many staff officers and commanders, both ground and air forces, weren't endowed with their wisdom and ultimately pursued their parochial goals. Consider these thoughts about the Supreme Allied Commander and his Chief of Staff as seen through the eyes of a strategic bombardment commander.

> General Eisenhower and his Chief of Staff, Lieutenant General Bedell Smith, fundamentally sought the objectives also sought by strategic air warfare, though they both discounted the ability of the airmen to achieve those objectives. They simply never gave much thought to any means except military occupation. This is the more lamentable because, while it was General Eisenhower who could have provided the greatest support for strategic air power, actually he was the one most responsible for diverting the strategic airmen from their mission. General Eisenhower's headquarters, SHAEF, had always considered the Ruhr as the heart of Germany. General Bedell Smith, Eisenhower's Chief of Staff, was even more specific. As Smith put it after the war, the factories and blast furnaces of the Ruhr "pumped life blood into the

> German military system. Once the Ruhr was sealed off, the heart would cease to beat." . . . the airmen had been trying for nearly a year to convince General Eisenhower that stopping the German industrial heart was the greatest contribution to victory that the strategic air forces could make, and that the strategic air forces should concentrate their efforts to that purpose. Unfortunately, the arguments of the strategic airmen were neither understood nor appreciated.[36]

General Eisenhower did indeed understand the capabilities of air forces that directly supported a ground commander. He had learned that lesson in North Africa and on the beaches of Sicily where he'd also developed a healthy respect for the Luftwaffe. He could see the great value of air power applied tactically in direct support of the objectives of the ground commander. As Supreme Allied Commander for OVERLORD he shouldered a staggering responsibility and should have had authority over all Allied resources necessary to assure the success of the invasion. It's no wonder that he sought to reduce his risk by demanding complete control of all Allied air forces in Europe. However, General Eisenhower's apparent lack of appreciation for the battlefield impact of strategic bombing is telling.

General Eisenhower's memorandum to General Marshall when he thought General Marshall was going to be selected as the Supreme Commander succinctly reveals his deeply held convictions about air power. He advised General Marshall to select

> . . a top airman "who is thoroughly schooled in all the phases of strategic bombing and more importantly in the job of supporting ground armies in the field." The great danger, he said, was getting an air commander who was totally wedded to the concept of strategic bombing or one without experience in the problem of air-ground coordination. Before and during the assault Marshall would need every plane he could get, but without the proper man at the top he would find that the airmen were scattering their effort on strategic raids inside Germany, making no direct contribution to the battle for the beachhead.[37]

Following the invasion as the Allies gained momentum with the breakout at St Lo in late July 1944, General Eisenhower did not immediately release the heavy bombers to resume the strategic bombing campaign. Approximately 25 percent of the bombers had maintained pressure on Germany by bombing her industrial heartland to tie down the Luftwaffe, the remainder of the force was not released until mid September. Even then 40 percent of the heavy bombing capability was dedicated to tactical support of the ground forces. General Hansell took great exception to this.

> In the months following the invasion of Normandy and the breakout at St. Lo, the strategic air forces were repeatedly diverted from their primary missions to provide local support for the ground forces, often in the form of local rail interdiction. There was little excuse for this diversion of strategic air force effort. Actually, General Eisenhower had enormous tactical air forces. . . . Eisenhower's Tactical Air Forces were larger than the entire Luftwaffe, which was fighting on four fronts . . . the sole function of these Tactical Air Forces was isolation of the battlefield and local support of the ground forces.[38]
> It was a serious error to call upon the strategic air forces for ground support after the breakout from the beachheads.[39]

My intent isn't to detract from General Eisenhower and other ground commanders, but to establish their perspective. Air power was new, and the claims of the airmen about strategic bombing were untested in warfare. To their credit, however, army commanders began to understand and appreciate it as the ground campaign in Europe unfolded. General Omar Bradley is quoted in the U.S. Strategic Bombing Survey thusly:

> With the advent of the German gamble in the Ardennes, when the Allies were again in a position to resume the war of movement -- in the East as in the West -- lack of oil, which the strategic bombing campaign had enforced upon the enemy, told handsomely. The retreat from the Ardennes was an agonizingly slow and costly affair for the enemy. The withdrawal of 6th Panzer Army, begun in daylight on 22 January 1945, was marked mainly by successes of US fighter bombers against its tanks and trucks. These successes, however, took

> place against a background of painfully exigous oil reserve -- with supply trucks being drained to fill the tanks of fighting vehicles -- and a long pull to the distant loading stations. When the Allies' threat shifted north of the Aachen sector, the enemy was unable to sidestep his "mobile" formations to meet it in the measure he sought -- again for lack of gasoline. When the Allied breakthrough followed west of the Rhine in February, across the Rhine in March, and throughout Germany in April, lack of gasoline in countless local situations was the direct factor behind the destruction or surrender of vast quantities of tanks and trucks and of thousands upon thousands of enemy troops.[40]

Observations such as General Bradley's were unfortunately made after the conflict was over.

If you'll recall the development of air power doctrine discussed in Chapter Two, it's easy to see that airmen of the day, especially the advocates of strategic bombardment, were also parochial in their views. Consider the heady claims that General Mitchell made for air power, such as:

> No longer will the tedious and expensive process of wearing down the enemy's land forces by continuous attacks be resorted to.[41]
>
> It is probable that future wars again will be conducted by a special class, the air force, as it was by the armored knights in the Middle Ages. Again the whole population will not have to be called in the event of national emergency, but only enough of it to man the machines that are the most potent in national defense.[42]

During the planning and staffing of AWPD-1 and AWPD-42, these heady claims seem to have been persisted. AWPD-1 was briefed to and approved by Army brass and was ready for presentation to President Roosevelt, but nowhere can I read or imply that these leaders looked at air power as a substitute for an invading army. Yet, even though there was always a provision for "support of an invasion" following a six month bombing of Germany's war making

infrastructure, the advocates of strategic bombing thought of this more in terms of an occupation than an opposed assault on the continent. Once again, I make these observations not to disparage our pioneering airmen, but to show the independent role many of them envisioned for the Army Air Force.

I believe these examples illustrate a tendency to seek independent service solutions to shared objectives. The evidence suggests that this approach prolonged the war and increased the cost of the war in life, limb and treasure.

## Chapter Three Notes

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## Chapter Four

## LINEBACKER II EXPERIENCE

Vietnam provided the most recent opportunity for the U.S. to apply air power on a large scale. Air power played a pivotal role throughout the period of U.S. military involvement and was the only significant U.S. fighting force used for tactical offense against North Vietnam.

> Between 1968 and 1972, more than 51,000 tactical and 9,800 B-52 sorties were flown against the North, most during the two Linebacker campaigns. The tactical aircraft dropped about 124,000 tons of bombs and the B-52's about 109,000 tons, with their "Sunday punch" missions of late December 1972 perhaps the most noteworthy.[1]

I'm convinced that massive, sustained air power employed on the North Vietnamese center of gravity precipitated the cease-fire agreement in January 1973 and secured the release of American and allied POWs.

President Nixon began to disengage the U.S. from Vietnam soon after he took office. From a high of 545,000 in 1969, U.S. troop strength was steadily reduced so that by May 1972 we had drawn down to about 69,000.[2] As we withdrew and negotiated with Hanoi, President Nixon warned the North Vietnamese that he would respond strongly to any overt offensive action against the South. Air power was the most viable instrument to execute the President's "response" since USAF, Marine and carrier based Navy air continued to support the South Vietnamese war effort.[3]

In the spring of 1972 the North Vietnamese took advantage of

reduced US strength by breaking off the Paris peace talks and launching a massive offensive across the demilitarized zone.

> Before the Easter weekend was over, twelve of Hanoi's thirteen regular combat divisions were carrying out military operations in South Vietnam. The 120,000 soldier force was equipped with more than 200 tanks as well as mobile radar-controlled anti-aircraft weapons and portable surface-to-air missiles.[4]

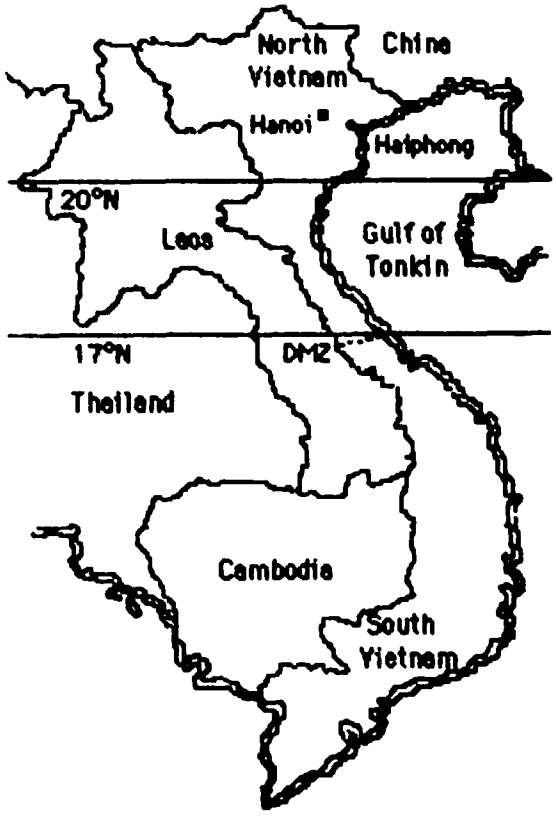
President Nixon responded as he had warned and <u>with air power</u>:

> On 2 April 1972, the national command authorities (NCA) through the Joint Chiefs of Staff (JCS) authorized airstrikes against military targets and logistics supply points north of the DMZ at 17°25'; this was increased to 18°N on 4 April and to 19°N on 6 April.[5]

Operation FREEDOM PORCH BRAVO was a one day strike against North Vietnamese targets conducted on 16 April 1972 which served as a precursor to Linebacker II. Orders for this mission appear simple

> CONDUCT ONE-DAY STRIKES BY B-52, USAF AND USN TACAIR AGAINST ENEMY DEFENSES AND LOGISTICS TARGETS IN THE HANOI AND/OR HAIPHONG AREAS IN ORDER TO EMPHASIZE OUR DETERMINATION TO STOP THE HANOI GOVERNMENT OFFENSIVE IN SOUTH VIETNAM.[6]

This order directed the employment of an integrated bombing force with supporting aircraft which we had not effectively




**Southeast Asia**
**Figure 4 - 1**

accomplished since Korea; now to be employed in North Vietnam's highest threat area.

> Fifteen USN A-6s struck Surface-to-Air Missile (SAM) sites in the Haiphong area, and 20 USAF F-4s laid a chaff corridor to screen the B-52s entry into the threat zones. With 7th AF and naval aircraft providing MIGCAP, IRON HAND SAM suppression, and Electronic Countermeasures (ECM) support, 17 B-52s attacked the Haiphong Petroleum Products Storage (PPS) area . . . The second and third waves, composed of TACAIR assets, followed up with attacks on ten other targets in the Hanoi/Haiphong areas. This included the Hanoi PPS, two air fields, and numerous warehouse complexes.[7]

The strike was successful despite formidable defensives. Over 250 SAMs were launched by the North Vietnamese, accounting for two TACAIR losses. Only a limited number of MIGs scrambled, but two MIG-21s were shot down with no U.S. air-to-air losses. The bombing damage and the message was clear:

> The 16 April raids destroyed half of the known POL storage in the Hanoi/Haiphong area and gave notice to the North Vietnamese that the US was not going to employ a "slowly graduated escalation" strategy as it had during the previous ROLLING THUNDER air campaign.[8]

On 8 May President Nixon intensified the air war as the North Vietnamese continued their campaign into the South. He ordered sustained bombing above 20°N including Hanoi and Haiphong, plus mining of Haiphong and other key harbors. The air campaign had these objectives:

> . . . to curtail the military resupply of North Vietnam from external sources, to destroy internal stockpiles of military supplies and equipment wherever located; to destroy targets throughout North Vietnam which were supporting the war effort in South Vietnam; and to restrict the flow of forces and supplies to the battlefield.[9]

Linebacker I produced results quickly. By late June the North's invasion had stalled and they signaled their willingness to resume the peace talks. President Nixon continued the bombing as the nego-

trations resumed to maintain pressure on the North Vietnamese. By late October the principles for a cease-fire were negotiated and peace appeared to be at hand. As a sign of good will, the President halted bombing north of the 20th parallel.10

Only minor details separated the North Vietnamese and American negotiators from concluding a peace plan. But the momentum waned in November and the talks reached a complete deadlock in mid December over the form of government to be implemented in the South and negotiations were broken off. True to form, when the military pressure on the North ceased, progress at the negotiating table faltered.

Once again President Nixon directed bombing of North Vietnam, however, this time the weight and scope of bombing was to be significantly increased. On 11 December the JCS issued the following message to initiate Linebacker II:

> YOU ARE DIRECTED TO COMMENCE AT APPROXIMATELY 1200Z, 18 DECEMBER 1972 A THREE-DAY MAXIMUM EFFORT, REPEAT MAXIMUM EFFORT OF B-52/TACAIR STRIKES IN THE HANOI/HAIPHONG AREAS AGAINST THE TARGETS CONTAINED IN (THE AUTHORIZED TARGET LIST). OBJECT IS MAXIMUM DESTRUCTION OF SELECTED MILITARY TARGETS IN THE VICINITY OF HANOI/HAIPHONG. BE PREPARED TO EXTEND OPERATIONS PAST THREE DAYS, IF DIRECTED.
> FOLLOWING INSTRUCTIONS APPLY:
> A. UTILIZE VISUAL AS WELL AS ALL WEATHER CAPABILITIES.
> B. UTILIZE ALL RESOURCES WHICH CAN BE SPARED WITHOUT CRITICAL DETRIMENT TO OPERATIONS IN RUN AND SUPPORT OF EMERGENCY SITUATIONS IN LAOS AND CAMBODIA.
> C. UTILIZE RESTRIKES ON AUTHORIZED TARGETS, AS NECESSARY. NORTH VIETNAMESE AIR ORDER OF BATTLE, AIRFIELDS, AND ACTIVE SURFACE-TO-AIR MISSILE SITES MAY BE STRUCK AS TACTICAL SITUATION DICTATES TO IMPROVE EFFECTIVENESS OF ATTACK FORCES AND MINIMIZE LOSSES.
> D. EXERCISE PRECAUTION TO MINIMIZE RISK OF CIVILIAN CASUALTIES UTILIZING LGB WEAPONS AGAINST DISIGNATED TARGETS. AVOID DAMAGE TO THIRD COUNTRY SHIPPING.11

Linebacker II, known to many crews as the eleven day war, was a joint and highly integrated air campaign. Table 4 - 1 gives a summary of the activity. TACAIR strike sorties were flown with F-4s and A-7s during the day, and F-111 and B-52 strike sorties were flown at night. F-111s flew alone without tactical mission support, while all other strike aircraft were escorted. During the first days of the campaign, there was one attack during the day and

**Linebacker II** — **December 1972**

| Date | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 26 | 27 | 28 | 29 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| **Day Mission** | | | | | | | | | | | |
| Mission Support * | 0 | * | * | * | 81 | 77 | * | 53 | 65 | 61 | 53 |
| Strike Aircraft (F-4,A-7)* | 0 | 52 | 74 | 66 | 76 | 68 | 32 | 48 | 52 | 48 | 40 |
| Total Day Sorties * | 0 | 0 | 0 | 0 | 157 | 145 | 0 | 101 | 117 | 109 | 93 |
| **Night Mission** | | | | | | | | | | | |
| Mission Support * | 117 | 117 | 117 | 58 | 65 | 70 | 69 | 114 | 101 | 99 | 102 |
| Strike Aircraft | | | | | | | | | | | |
| F-111 * | 16 | 33 | 18 | 33 | 33 | 25 | 8 | 25 | 24 | 16 | 10 |
| B-52 | 129 | 93 | 93 | 30 | 30 | 30 | 30 | 119 | 60 | 60 | 60 |
| Total Night Sorties * | 145 | 126 | 111 | 63 | 63 | 55 | 38 | 144 | 84 | 76 | 70 |
| **Total Aircraft Sorties*** | 145 | 126 | 111 | 63 | 220 | 200 | 38 | 245 | 201 | 185 | 163 |

* Approximate or not available

Table 4 - 1 [12]

three attacks or waves at night. The typical mission support package of 39 aircraft which initially supported each of the waves of B-52s illustrates the extent and complexity of Linebacker II.

> Eight F-4 Chaff Bombers would dispense clouds of radar-reflective chaff in pre-planned corridors to mask B-52s from enemy radars during their bomb runs. Eight F-105G or F-4C Wild Weasels would protect the first two waves of B-52s by detecting and suppressing enemy SAM sites attempting to bring their SAMs to bear on the strike force. . . . Navy A-6As would provide SAM suppression for the third wave each night. Additional ECM was provided by three EB-66s which would detect and jam enemy radar systems from orbits west of Hanoi. Also, 10 F-4 escorts would accompany the bombers through the threat area and an additional 10 MIGCAP F-4s would roam the areas of likely MIG activity to stop the enemy interceptors before they could attack the bomber force.[13]

In addition, each attack wave was supported by search and rescue forces, reconnaissance forces, airborne surveillance radars and an armada of KC-135 tankers. Beginning with day four, the campaign was restructured into one daylight and one night attack. This permitted a higher ratio of mission support to strike aircraft (the increase was used primarily for additional chaff bombers and wild weasels). Navy and Marine TACAIR provided fully integrated mission support for both day and night strikes.

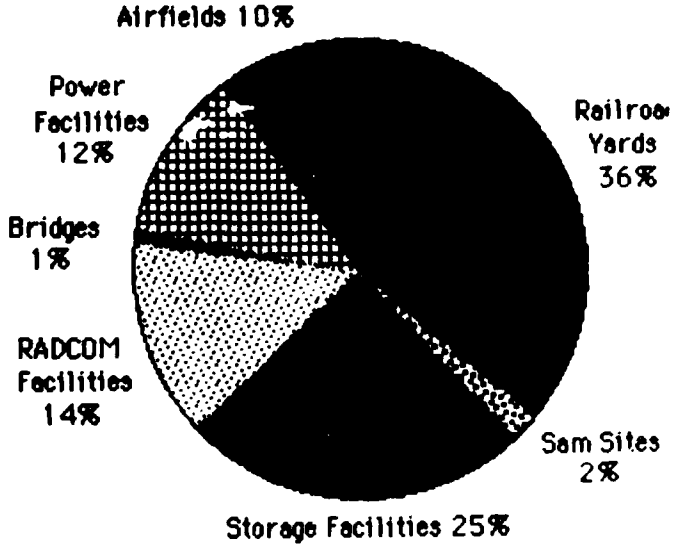
General James R. McCarthy, Commander of the 43d Strategic Wing, Anderson AFB, Guam -- source of over half the B-52s for the campaign -- made these observations.

> the LINEBACKER success was a team effort. Heavy preemptive strikes against the awesome enemy defenses were made continuously by F-111s and various combinations of Air Force, Navy, and Marine Corps fighter-bombers prior to the arrival of the B-52s. Special purpose F-4s sowed protective chaff while EB-66s and Navy and Marine EA-3s and EA-6s emitted electronic countermeasures (ECM) jamming signals to help hide the penetrating force. F-105s, F-4s and Navy A-7s flew interspersed with the waves of bombers to deal on an immediate basis with ground defenses. Protective F-4s flew escort for the electronics aircraft and B-52s, while others flew combat air patrols to counter the fighter threat. The skies, already dominated by American air power, were literally alive with friendly aircraft.[14]

All Linebacker II targets were in the vicinity of Hanoi and Haiphong and were selected to inflict maximum destruction on North Vietnam's capacity to wage war and to influence Hanoi's will to continue the fight. After just eleven days U.S. air power dropped over 42,000 bombs -- over 15,000 tons of bombs -- against 59 targets.[15] Figure 4 - 2 shows sorties allocated to various target groups and Figure 4 - 3 shows bombs delivered by each USAF aircraft during the campaign.

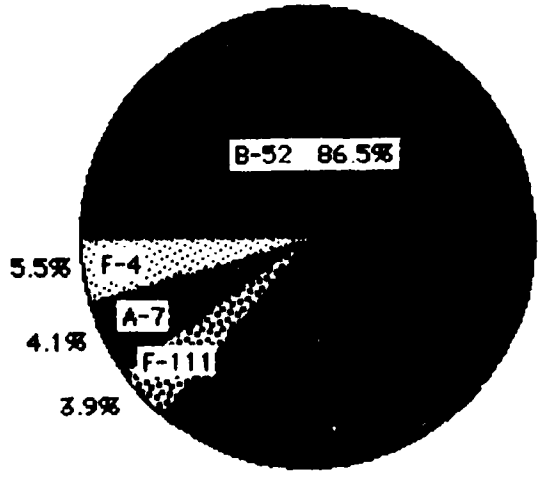
The success of Linebacker II was summed up by General McCarthy.

> Bomb damage assessment revealed 1600 military struc-tures damaged or destroyed, three million gallons of petroleum products destroyed (esti-mated to be one-fourth of North Vietnam's reser-ves), ten interdictions of airfield runways and ramps, an estimated 80percent of electrical power production capa-bility destroyed, and destroyed, and numerous instances of specialized damage, such as to open storage stockpiles, missile launchers, and so forth. No specific measurements are known of indirect losses, such as industrial inactivity, disruptions to almost all forms of surface travel, and communications outages.
>
> However, insight as to the indirect effects on all areas of the nation's productivity may be had by comparing one revealing statistic. Although the blockade of Haiphong harbor was in effect when LINEBACKER II started, logistic inputs to North Vietnam were assessed at 160,000 tons per month. In January 1973, imports dropped to 30,000 tons per month.[18]




**LINEBACKER II Target Set**

Figure 4 - 2 [16]




**Bombs Dropped by Aircraft**

Figure 4 - 3 [17]

North Vietnam's defenses were formidable. Estimates of the number of SAMs launched against U.S. forces ranges from 884 to

1,240 during the eleven days.[19] In addition, MIGs and heavy barrages of AAA contributed to an extremely hostile environment and we suffered attrition as shown in Table 4 - 2. B-52s sustained the highest losses, 15, for an attrition rate of 2.1 percent. Overall

| | Cause | | | | Crewmembers | | | |
|---|---|---|---|---|---|---|---|---|
| | AAA | MIG | SAM | Other | Rescued | POW | MIA | KIA |
| B-52 | | | 15 | | 26 | 33 | 24 | 5 |
| USAF TACAIR | 1 | 2 | | 4 | 5 | 6 | 3 | 3 |
| Navy/Marine | 3 | 1 | 1 | 2 | | 6 | 3 | 3 |

**LINEBACKER Aircraft/Aircrew Losses**

Table 4 - 2[20]

during the campaign approximately 4,000 combat sorties were flown by all types of aircraft; 27 were lost as a result of hostile action for a campaign attrition rate of .67 percent.[21] In addition to the targeting SAM sites, U.S. forces shot down five MIGs: two by B-52 tail gunners and three by USAF F-4s.[22]

**Lessons Learned**

**First**: As can be seen from the foregoing discussion, Linebacker II was a highly integrated air power campaign. When the full capability of integrated air power was intensively employed against the North Vietnamese center of gravity, we achieved objectives that had eluded the United States throughout the conflict in just eleven days. When the North Vietnamese rebuffed U.S. diplomatic initiatives at the Paris peace talks, President Nixon effectively used military force to reestablish momentum and conclude an agreement. The objective of this Presidentually directed campaign was not to defeat or destroy North Vietnam, but

to influence their will to fight and force a political resolution to American involvement in Vietnam. The intensive bombing not only diminished North Vietnam's war making capability, but beyond the physical damage, it also scored a direct hit on Hanoi's intransigence Consider these thoughts from POWs in Hanoi during the bombing

> Colonel Robinson Risner. We saw reaction in the Vietnamese that we had never seen under the attacks from fighters. They at last knew that we had some weapons they had not felt, and that President Nixon was willing to use those weapons in order to get us out of Vietnam.[23]

> Colonel Bill Conlee: There is no doubt in my mind but that LINEBACKER II was the primary reason for the negotiation decision by the North Vietnamese. They truly respect strength and, as seen up close, were absolutely terrified by the December 1972 B-52 bombing.[24]

General Momyer, Commander of Tactical Air Command, made these observations:

> It was apparent that air power was the decisive factor leading to the peace agreement of 15 January 1973. The concentrated application of air power produced the disruption, shock, and disorganization that can be realized only by compressing the attack and striking at the heart with virtually no restraints on military targets which influence the enemy's will to fight.[25]

Sir Robert Thompson, a noted British expert on the Southeast Asia war, offered this conclusion about Linebacker II

> In my view, on December 30, 1972, after eleven days of those B-52 attacks on the Hanoi area, *you had won the war. It was over!* They had fired 1,242 SAMs; they had none left, and what would come in over land from China would be a mere trickle. They and their whole rear base at that point were at your mercy. They would have taken any terms And that is why, of course, you actually got a peace agreement in January, which you had not been able to get in October.[26]

Secretary of State Henry Kissinger, who knew first hand the frustration of trying to negotiate with the North Vietnamese, couched the results of Linebacker II in these objective terms.

> . there was a deadlock . . in the middle of December, and there was a rapid movement when negotiations resumed on January 8 These facts have to be analyzed by each person for himself . . .[27]

**Second**: Doctrine at the operational and tactical levels must fully integrate "tactical" and "strategic" assets to the reap the full potential of air power By December 1972, B-52s and TACAIR had been employed for over seven years in Southeast Asia -- but as separate and distinct forces An exception was operation FREEDOM TORCH BRAVO (previously discussed) in April 1972. Although this was a successful "one time" integrated strike, little attention was paid to consolidating the lessons learned In fact the wrong lessons may have been learned. When we needed the capability of an intense, concentrated "MAXIMUM EFFORT, REPEAT MAXIMUM EFFORT OF B-52/ TACAIR STRIKES IN THE HANOI/HAIPHONG AREAS,"[11] we were not adequately prepared Our success may have masked enduring problems.

Beginning with the first night's strike, it was evident that there was a lack of coordination and planning between the B-52s and their supporting TACAIR. The problems were clear to the crews who were executing the mission amidst the flak, SAMs and bandits Consider some of the challenges facing the fighter escort crews:

> The job of rendezvousing and escorting the B-52s at night was made considerably more difficult for a number of reasons. The escorts were forced to maintain high altitudes at low airspeeds where they could not effectively counter a high speed MIG attack or have enough maneuverability to avoid SAMs Also, the exact B-52 ingress routes were not always known due to changes to TOTs The only information provided to the escort aircrews was the IP to target tracks of the B-52s Therefore, the escort missions were flown based solely on timing due to the fact that the crews were unable to maintain visual or radar contact with the B-52s at night The B-52s were jamming to defeat enemy radars, and it was impossible for the fighters to use their on-board equipment to position themselves with regard to the bomber cells. The B-52s did not use their IFF even though the escorts had APX-76 identification equipment and could have identified them precisely.[28]

The B-52 crews also faced similar challenges

> . . . my co-pilot stated he saw a MIG-21 on the right wing of our aircraft. In mild disbelief, I stretched to see out his window and sure enough, a MIG-21 with lights off was flying tight formation with us.[29]

> The effectiveness of the protective chaff corridors was a major concern during days 1-3. Only four of the 27 cells bombing targets within the high threat areas around Hanoi had been afforded protection by the established chaff corridors.[30]

This sampling of incidences shows that we weren't adequately prepared to integrate "tactical" and "strategic" assets. Our aircrews succeeded -- in spite of -- rather than because of, well thought out operational and tactical doctrine for integrated air power. However, many of them paid a high price while we relearned forgotten lessons of experience.

## Chapter Four Notes

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11 Message, JCS to CINCPAC, 170010Z Dec 72, Subj: Linebacker II Operations Declassified by OJCS DJSM-340-80, 15 February 1980

12 Data for this chart was extracted from several unclassified sources. The two primary sources of "approximate" data were Eschmann, Major Karl J., USAF, *THE ROLE OF TACTICAL AIR SUPPORT LINEBACKER II*, Report Number 85-0765, Air Command and Staff College, Maxwell AFB, AL, and McCarthy, Brigadier General James R and Allison, Colonel George B., USAF, *LINEBACKER II: A VIEW FROM THE ROCK*, USAF Southeast Asia Monograph Series, Published under the auspices of the Airpower Research Institute, Air War College, Maxwell AFB, AL, 1979. Precise data is available at the SECRET level in *Linebacker Operations, September - December 1972*, Project CHECO Southeast Asia Report, Office of History, HQ PACAF, 31 December 1978, SECRET, Annexes 5, 6 and 7.

13 Eschmann, *THE ROLE OF TACTICAL AIR SUPPORT LINEBACKER II*, p 49.

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19. Ibid., p 171.

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22. Ibid., pp. 108,109.

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# Chapter Five
# CONCLUSIONS

**Air power is indivisible. We don't speak of a "strategic" or a "tactical" Army or Navy, yet those terms constantly are applied to the Air Force.**

**The overriding purpose of every plane, whether it is a bomber or a fighter, is to win the air battle on which final victory on land or sea is predicated.**[1]

General Hoyt S. Vandenberg, 1951

The role of the bomber is the same as for fighters or any other offensive system -- as a member of the indivisible and integrated air power team. Obviously there will be specialization of team members, as with members of a football team, but just one team working together to achieve a common objective. The separation of air power into "strategic" and "tactical" components had been a troubling phenomenon in the United States Air Force for many years. As General Vandenberg so clearly saw in the early years of the independent Air Force, this separation is dysfunctional when it comes to the application and employment of air power. This separation had its roots in the air power theories and doctrines of the 1920s and 30s, and was perpetuated by the nuclear strategies and organizations of the 1950s and early 60s.

Our war experience is remarkably consistent -- in every major conflict we've obtained the maximum combat capability from our air power when we've employed our components in an integrated and indivisible manner. To our discredit, all to often we only integrated

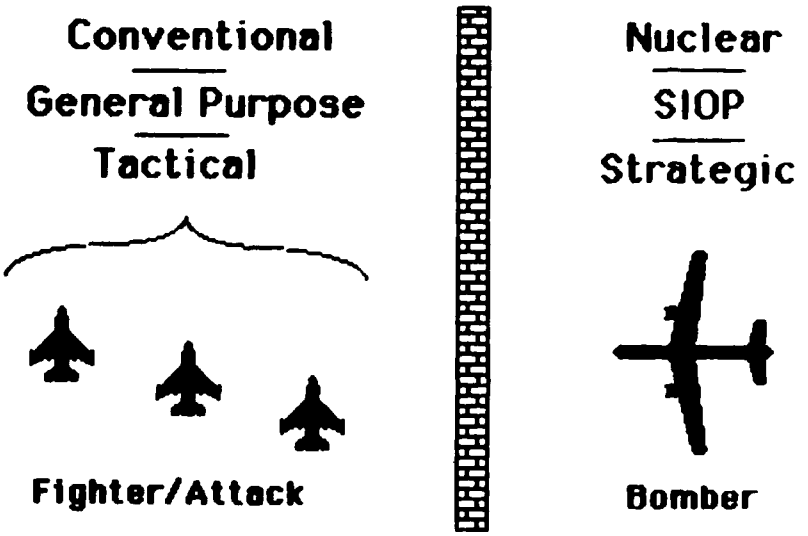
our forces when compelled by the tide of battle. One of the lessons I drew from our World War II experience was that neither bomber nor fighters can claim to have single handedly crippled German war making capability. Clearly, however, integrated air power destroyed the Luftwaffe and paralyzed the Nazi industrial infrastructure.

Dr. Robert F. Futrell, an air power historian, made these observations about how we employed air power in Korea

> Old concepts that certain targets were "tactical" and others were "strategic" were abandoned, and so far as FEAF [Far East Air Force] resources were concerned, airpower was undivided by artificial and unreal attempts to classify targets by types of aircraft.[2]

In the Linebacker II campaign over North Vietnam integrated air power was incredibly effective and decisive. Not only was North Vietnam's logistics structure shattered and defenses crushed, but the U.S. political objective was secured.

We must learn from our experience to recognize and squarely confront the "brick wall" that fractures air power into separate domains.




We should consider the following steps to integrate our fighter/attack and bomber capabilities into an indivisible air power team.

First, we should carefully study our sister services. For

instance, consider the division, the basic combat organization of the U.S. Army. Divisions are built up from various components, such as infantry, armor, artillery, etc. These diverse components represent specialty fields with proud traditions, however, each fights as an element of an integrated team, never as an independent entity.

Second, although we routinely use "strategic" and "tactical" we need to develop a much better understanding of the concepts. The 1984 edition of AFM 1-1 makes a good effort to put these concepts into perspective, however, their meaning remains vague and illusive. We often associate "tactical" with elements of a theater battlefield and "strategic" with elements far in the rear which support the battlefield. While this seems like a simple, straightforward concept, it has diminished utility when the enemy starts shooting. One person's immediate (tactical) challenge may be the next person's longer range (strategic) problem. The concept has been further clouded by the application of "tactical" and "strategic" to organizations, like Strategic Air Command. To muddy the waters still further, bomber crew members use "tactical doctrine" to employ their weapon systems on "strategic missions." My point is this -- these words (or concepts) mean many things to many people and unfortunately this has led to ambiguity. We should clearly define and promulgate these concepts to every Air Force member, or else purge them from our lexicon.

Third, we should look at the role of both Tactical Air Command and Strategic Air Command as being similar to the Army's Forces Command -- to train and sustain CONUS based combat ready forces ready for worldwide deployment. To get away from "tactical" and

"strategic" we might take a lesson from the British and rename these Fighter Command and Bomber Command. Without getting hung up on the specified responsibility of nuclear deterrence, we should recognize that they both have a major purpose to provide combat ready forces for theater commanders. Each has dual role forces capable of supporting nuclear deterrence under a plan like the SIOP, as well as contributing to conventional deterrence and war fighting. A prime function of each should be to train and sustain combat ready forces to be employed as indivisible and integrated air power in a unified command theater.

We recognize the broad authority of a theater commander to select the best forces to accomplish his mission. Yet we fetter his hands today by separating our air power into "tactical" and "strategic" forces based on organizational considerations. In operational planning we strive to put the best weapon on a target, our combat experience repeatedly tells that we've put the available weapon on the target. We must be careful not to artificially constrain the flexibility of air power, plan for the best forces, but never limit available forces.

Theater commanders should have assured access to long range bombers as well as fighter/attack forces. While some bombers could be dedicated to theater requirements, others could be made available through a JCS apportionment between the nuclear deterrence mission and a theater mission requirement.

**"One of the serious problems in planning against American doctrine is that the Americans do not read their manuals nor do they feel any obligations to follow their doctrine."**

From a Russian Document

Doctrine, tempered with combat experience, can provide a rational foundation for air power strategy and force structure -- if we use it. Chapters Two and Three showed how over a decade of doctrinal development at the Air Corp Tactical School undergirded the maturation of air power in World War II. Regardless of your assessment of the Air Corp's doctrine, without it we would have been thrust into the conflict without a concept to exploit and employ America's air capabilities. Even with sound conceptual planning, nearly two years elapsed after Pearl Harbor before we could produce and employ decisive quantities of bombers and fighters in Europe. What if those airmen at the Air Corp Tactical School had not dedicated themselves to preparing for the next war? What if we had launched the D Day invasion without first defeating the Luftwaffe and crippling the transportation network of western France? Today, you and I must learn from their example of forward thinking.

Most existing AFM 2-X series operational doctrine is outdated, irrelevant and ignored. Most of this doctrine has atrophied to the point that it appears we have accepted its de facto abandonment. Individual Major Commands in the Air Force are responsible for developing operational doctrine and this has led to isolated, sometimes fragmented doctrine. But this is the level of doctrine that should integrate air power components into indivisible air power

We should correct this deficiency by centralizing the development of operational doctrine in one organization, which is headed by a ranking general officer -- a tough, respected warrior -- with an indivisible and integrated air power perspective who reports directly to the Chief of Staff. This organization should be staffed with some of our most capable leaders and thinkers, those that have been or will be entrusted with command of our combat and combat support units. Officer and NCO Professional Military Education should increase their emphasis on doctrine and the Air War College curriculum should incorporate an active, ongoing role in developing, reviewing and updating operational doctrine

## Notes on Chapter Five

1. Hoyt S. Vandenberg and Stanley Frank, *The Truth About Air Air Power*, Saturday Evening Post 223, No. 34 (17 February 1951) 21

2. Robert F. Futrell, *The United States Air Force in Korea, 1950 - 1953*, Washington, D.C., Office of Air Force History, 1983, p 504.

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